

GROWING FAMILIES™...

A Newsletter For Those Who Care For Childbearing Families and Neonates

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®PATIENT TEACHING... PREVENTION OF NEWBORN INFECTION

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Behavioral Objectives: After reading this newsletter the learner will be able to:

1. Describe the function of the immune system and risk factors for newborn infection.
2. Discuss the role of the healthcare provider in parent education regarding infection prevention in the home and recognizing signs of illness in the newborn.

A universal wish among parents is, "I want my baby to be healthy." For most childbearing families, great care is taken during pregnancy to help ensure the birth of a healthy newborn. Nutritious foods are eaten, attention is paid to exercise and preventing maternal illnesses, and healthcare appointments are faithfully kept.

This vigilance regarding their baby's well-being makes most parents highly motivated when it comes to learning how to keep their baby healthy in the weeks and months following birth. The healthcare provider, working with pregnant women and new mothers, plays a key role in teaching them how to practice good health habits and prevent newborn infection.

This newsletter will discuss the function of the immune system and risk factors for newborn infection. The role of the healthcare provider in parent education regarding infection prevention in the home and recognizing signs of illness in the newborn will also be discussed.

NEONATAL INFECTION: RISK FACTORS

As healthcare providers, we recognize that newborns are among our most vulnerable patients. They are at higher risk for infection than any other childhood group, and are completely dependent on those around them to meet their needs.

A number of factors make the newborn more susceptible to infection than other groups:

Age: The immune system strengthens with age, throughout infancy and the childhood years. It is, therefore, at its weakest during the neonatal period. Some protection from infection is provided by antibodies received from the mother during pregnancy, and during breastfeeding, if the mother chooses this feeding method.

Other protective substances, such as some immunoglobulins, must be manufactured by the newborn. This process leaves the newborn temporarily deficient in these infection-fighting agents during early life.

Developmental Factors: Preterm neonates are generally at higher risk for infection than are neonates born at term. This is due to the developmental immaturity of the preterm newborn's immune system. Also, most of the antibodies provided to the fetus during pregnancy are transferred from the mother during the third trimester. Therefore, the pre-term neonate may not receive as much protection as the term neonate before birth occurs.

Immediately after birth, steps are taken in healthcare settings to prevent newborn infection. The newborn's eyes are treated with erythromycin ointment or other antimicrobial agent to help prevent infection caused by chlamydia or gonococcal organisms transmitted during vaginal birth. The stump of the umbilical cord may be treated with Triple Dye, alcohol, or antibiotic ointment to prevent infection. The newborn may also be vaccinated to prevent infection with hepatitis B.



INFECTION CONTROL... PARENT EDUCATION

In addition to these measures taken by healthcare providers shortly after birth, there are many ways that parents can protect their newborn from infection once they arrive home. To achieve this goal, parent education should begin during the latter part of pregnancy, during each contact with the healthcare provider, and continue in the healthcare facility after birth. Follow-up teaching and reinforcement are also important during well baby visits. To provide rationale for this education, parents should be taught that the newborn's immune system is not yet well-developed, and that he or she is at increased risk for infection, especially during the first two months of life.

When teaching parents how to prevent newborn infection, proper hand washing is a good place to start. Hand washing is recognized as the single most effective way to prevent disease transmission and infection. Parents should be instructed

to wash hands thoroughly before handling the newborn, and at other customary times, such as before preparing formula or food and after using the bathroom, changing diapers, gardening or handling pets, eggs or raw meat. Effective hand washing involves use of mild soap, warm water, and friction, and washing for at least 15 seconds, followed by thorough rinsing and drying.



Another way to help prevent newborn infection is by breast feeding. Breast feeding is believed to reduce the risk of infection, especially GI and respiratory illnesses, by passing along maternal immune factors and antibodies. If the mother chooses this feeding method, her newborn receives additional protection during the crucial period of infancy, when the immune system is maturing. Added benefits of exclusive breastfeeding include no risk of illness from unclean bottles or spoiled formula.



Other aspects of newborn care can also impact the risk of infection:

Bottle feeding: Bottles, caps, nipples, and pacifiers must be kept scrupulously clean by washing in hot, soapy water, rinsing well, and air drying on a clean surface. Bottles and caps may be placed in the dishwasher, but this is not advised for nipples, as it hastens their breakdown. Sterilization is not necessary unless the water supply is questionable, such as well water. Can openers and the tops of formula cans should be thoroughly washed before use. Because the kitchen is an area with a high concentration of microorganisms, parents should be advised to keep feeding equipment away from contaminated surfaces, such as an unwashed cutting board used for raw chicken.

Once dry formula is reconstituted or liquid formula is opened, it should be stored in the refrigerator for no longer than 24 hours. Formula must be refrigerated promptly, and any that has been out of refrigeration for two hours or more should be discarded. Parents should also be cautioned to discard formula left in a bottle after feeding—never put it back in the refrigerator for future use, as microorganisms are likely to grow in it.

Nipples or pacifiers that fall on the floor should be washed thoroughly before using again. Nursing mothers who pump or express milk for feeding by bottle should follow the same recommendations for cleaning of bottles and storage of milk.

Contact with others: A new baby typically causes a great deal of excitement in the family, with many people eager to visit the new arrival. This may pose some hazards for the baby, however. Due to their weak immune systems, infants younger than 6 weeks of age should not be exposed to large crowds, where the risk of disease

transmission is increased. Parents should also avoid contact with people known to be ill. And, anyone (including parents) with herpes simplex lesions on the mouth or face should not kiss the newborn, and should cover the lesion and wash hands thoroughly before handling the baby.



Cord care: Parents should be instructed to keep the baby's cord stump clean and dry until it separates. Tub baths should be avoided, and the diaper folded below the umbilicus to promote drying. The parents may also be advised to apply Triple Dye, alcohol, or antibiotic ointment with a clean cotton ball at each diaper change.

Circumcision care: The circumcision site should be kept clean and dry, washed with warm water during bathing and gently patted dry. Application of petroleum jelly helps to keep the glans from sticking to the diaper. To promote healing and comfort, the diaper should be loosely applied and/or left off for short periods. Parents should be informed that the yellow material covering the glans within a day or two is evidence of healing, and not an infection.

Honey: Many new parents are not aware that honey may be hazardous if given to infants under one year of age. Spores in the honey may result in botulism poisoning, an illness with effects ranging from mild illness to paralysis and death.

Immunizations: Parents should ensure that their baby receives regular healthcare, including the recommended immunizations, during infancy and childhood. This is an important point, as some parents may feel that it is not important to have their baby immunized against diseases that they mistakenly think have been eradicated.

WHEN TO CALL THE DOCTOR

Many parents, especially first-timers, are understandably anxious about recognizing signs of illness in the newborn and knowing when to call the doctor. Parents should be encouraged to contact their physician whenever they have questions or concerns about their baby's health, or if the baby "just isn't acting right." Infection can rapidly overwhelm a newborn. Parents should be directed to contact their physician for the following signs of infection in their newborn:

Extreme irritability	Poor feeding
Limp muscle tone	Bulging fontanel
Pale or mottled skin	Jitteriness
Rapid or labored breathing	
Temp < 97 F or ≥ 100.4 F	
Swollen, red or draining areas	

Through effective parent education, the healthcare provider, working with childbearing families, can assist them prevention infection in the newborn at home.



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